

REMARKS/ARGUMENTS

This is a Response to the Office Action mailed April 4, 2007, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire July 4, 2007. Claims 1, 5, 13, 16, 17, and 19 are currently amended. Claims 3, 14 and 15 have been canceled. No new matter has been added to the application. No fee for additional claims is due by way of this Amendment. The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Upon entry of the amendments herewith, claims 1 and 4-13, 16-22 remain pending.

1. Objections to the Drawings

At page 2 of the Office Action, the Drawings are objected to because the drawings allegedly “fail to show Figures 5a and 5b as described in the specification.” Applicants have amended the Specification herewith to refer to the originally filed Figure 5. Accordingly, Applicants respectfully request withdrawal of the objection to the Drawings.

2. Objections to the Claims

At page 3 of the Office Action, claims 1, 3, 4, 13-16, and 19 were objected to because they “need to define what are VL, VM and VH.” In response to the Objection, the Claims are amended or canceled herewith. Accordingly, Applicants respectfully request withdrawal of the objection to the Claims.

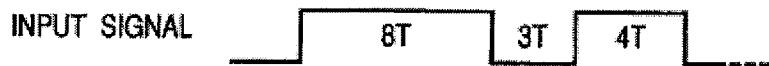
3. Rejections Under 35 U.S.C. § 102(b)

In the Office Action, at page 3, claims 1, 3-5, 12, 15, and 17 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *Ueki* (U.S. Patent 6,404,713), hereinafter *Ueki*. For a proper rejection of a claim under 35 U.S.C. § 102, the cited reference must disclose all elements and/or features of the claim. See, e.g., *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 7 U.S.P.Q.2d 1129 (Fed. Cir. 1988).

a. Claim 1

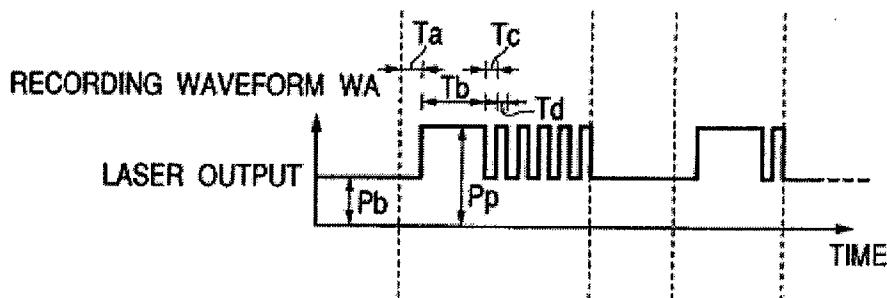
Claim 1 is rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *Ueki*. Applicants respectfully submit that independent claim 1, as amended, is allowable for at least the reason that *Ueki* does not disclose, teach, or suggest “in the case where data are to be recorded at a linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, the number of pulses is set to one (1) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the length of the recording mark to be formed becomes longer” as recited in amended claim 1.

Ueki does not disclose, teach, or suggest at least using a shortest recording mark with one pulse and longer recording marks set with a larger number of pulses when “data are to be recorded at a linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity.” The Examiner is respectfully referred to the “input signal” illustrated in *Ueki* Figure 3, shown below.



Ueki discloses, “as shown in FIG. 3, the 8-16 modulation-resultant signal (the input signal) repetitively changed between a high level state and a low level state. A clock signal (a bit clock signal) related to the 8-16 modulation-resultant signal had a period T. The period T is also indicated as T” (column 10, lines 27-31). Thus, Figure 3 first illustrates a two (2) pulse input signal, the first pulse having a period of 8T and the second pulse having a period of 4T.

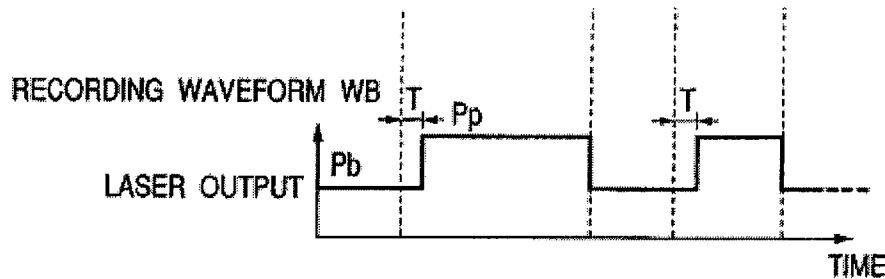
Ueki next discloses a recording waveform WA, illustrated below.



The recording waveform WA illustrates that the first pulse of the input signal (having a period of $8T$) is recorded by generating a recording pulse train of six (6) pulses. The recording waveform WA illustrates that the second pulse of the input signal (having a period of $4T$) is recorded by generating a recording pulse train of two (2) pulses. *Ueki* discloses that “the recording waveform WA was used when the linear velocity was 1.5 m/s, 3.0 m/s, and 6.0 m/s” (column 11, lines 30-31). Thus, the waveform WA pertains to *three* different recording speeds (1.5 m/s, 3.0 m/s, and 6.0 m/s).

Ueki does not disclose that the recording waveform WA has the number of pulses “set to one (1) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the length of the recording mark to be formed becomes longer” as recited in claim 1. Rather, *Ueki* discloses that the shortest recording pulse of $4T$ is recorded *by generating a recording pulse train of two (2) pulses*. This is not the same as disclosing that “the number of pulses is set to one (1) at least when the shortest recording mark is to be formed” as recited in claim 1. Therefore, the illustrated *Ueki* waveform WA, and the attendant discussions in *Ueki*, do not disclose the above-recited feature of claim 1.

Ueki next discloses a recording waveform WB, illustrated below.



The recording waveform WB illustrates that the first pulse of the input signal (having a period of $8T$) is recorded by *generating a recording pulse train of one (1) pulse*. The recording waveform WB illustrates that the second pulse of the input signal (having a period of $4T$) is recorded by *generating a recording pulse train of one (1) pulse*. *Ueki* discloses that “the recording waveform WB was used when the linear velocity was 9.0 m/s” (column 11, lines 31-33). Clearly, the recording waveform WB, used when the linear velocity is 9.0 m/s, is not the

same as the recording waveform WA, used when the linear velocity is .5 m/s, 3.0 m/s, and 6.0 m/s.

Summarizing the disclosure of *Ueki* with respect to Figure 3, neither of the recording waveforms WA or WB individually teach, disclose, or suggest at least the feature of “in the case where data are to be recorded at a linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, *the number of pulses is set to one (1) at least when the shortest recording mark is to be formed* and the number of pulses is set larger as the length of the recording mark to be formed becomes longer” as recited in amended claim 1 (emphasis added). Furthermore, since the recording velocities at which recording waveform WA is used is different from the recording velocity of recording waveform WB, aspects of recording waveform WA cannot be properly combined with aspects of recording waveform WB. Therefore, recording waveforms WA and WB do not anticipate claim 1.

Similarly, the disclosure of *Ueki* with respect to Figure 1 (the recording waveforms WA0 and WB0, which correspond to the recording waveforms WA and WB of *Ueki* Figure 3) does not teach, disclose, or suggest at least the above-recited features of claim 1. Nor do the recording waveform WC of *Ueki* Figure 7 or the recording waveform WD of *Ueki* Figure 8 teach, disclose, or suggest at least the above-recited features of claim 1. Nowhere in *Ueki* is there any teaching, disclosure, or suggestion of at least the above-recited features of claim 1. Thus, claim 1 as amended is not anticipated by *Ueki*, and the rejection should be withdrawn.

b. Claims 3-5

Claim 3 is canceled without prejudice, waiver, or disclaimer, and therefore, the rejection to this claim is rendered moot. Applicants take this action merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicants reserve the right to pursue the subject matter of this canceled claim in a continuing application, if Applicants so choose, and do not intend to dedicate any of the canceled subject matter to the public.

Because independent claim 1 is allowable over the cited art of record, dependent claims 4 and 5 (which depend from independent claim 1) is allowable as a matter of law for at least

the reason that dependent claims 4 and 5 contain all features/elements of independent claim 1. See, e.g., *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Accordingly, the rejection to these claims should be withdrawn.

c. Claim 12

Claim 12 is rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *Ueki*. Applicants respectfully submit that independent claim 12 is allowable for at least the reason that *Ueki* does not disclose, teach, or suggest at least the feature of “employing a pulse train pattern having a smaller number of pulses whose level is set to a level corresponding to a recording power as a ratio of a track pitch TP of the optical recording medium to a diameter of a spot of the laser beam becomes smaller” (emphasis added).

There is no disclosure anywhere in *Ueki* pertaining to the recited *track pitch TP*. Thus, claim 12 is not anticipated by *Ueki*, and the rejection should be withdrawn for at least this reason alone.

Also, *Ueki* does not disclose any information pertaining to the *diameter of a spot of the laser beam*. There is no disclosure anywhere in *Ueki* of laser beam spot diameters. Thus, claim 12 is not anticipated by *Ueki*, and the rejection should be withdrawn for at least this reason alone.

Since *Ueki* completely fails to disclose any information pertaining to track pitches or laser beam spot diameters, *Ueki* does not disclose any information pertaining to a ratio of a track pitch to a laser beam spot diameter. Thus, claim 12 is not anticipated by *Ueki*, and the rejection should be withdrawn for at least this reason alone.

d. Claim 13

Independent claim 13 is rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *Ueki*. Applicants respectfully submit that independent claim 13, as amended, is allowable for at least reason that *Ueki* does not disclose, teach, or suggest at least the feature “wherein a ratio of the bottom power to the recording power is set higher as the linear recording velocity becomes higher.”

Ueki discloses at most a recording power level P_p and an erasing power level P_b (see *Ueki* Figures 1, 3, 7, and 8). Additionally, *Ueki* Figures 7 and 8 illustrate another power level, and discloses that for “a limited time interval immediately preceding each pulse train, the power of a laser beam is lower than an erasing level P_b. Also, during a limited time interval immediately following each pulse train, the power of the laser beam is lower than the erasing level P_b” (column 11, line 67, to column 12, line 5; referred to hereinafter as the “lower power laser beam” for convenience).

However, *Ueki* does not disclose any type of ratio between P_p and P_b, between P_p and the lower power laser beam, or between P_b and the lower power laser beam. Thus, *Ueki* does not disclose a ratio of the bottom power to the recording power as recited in claim 13. (Thus, claim 13 is not anticipated by *Ueki*, and the rejection should be withdrawn for at least this reason alone.)

Since *Ueki* does not disclose any type of ratio between P_p and P_b, between P_p and the lower power laser beam, or between P_b and the lower power laser beam, *Ueki* does not disclose that the ratio of the bottom power to the recording power is set higher as the linear recording velocity becomes higher. Thus, claim 13 is not anticipated by *Ueki*, and the rejection should be withdrawn for at least this reason alone.

Furthermore, independent claim 13 is allowable for at least the reason that *Ueki* does not disclose, teach, or suggest at least the feature “wherein the number of pulses is set to one (1) in the case where data are to be recorded at the linear recording velocity equal to or higher than a first linear recording velocity, and wherein in the case where data are to be recorded at the linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, the number of pulses is set to one (1) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the length of a recording mark to be formed becomes longer.” As noted above, the recording waveforms WA, WB, WC and WD of *Ueki* do not teach, disclose, or suggest at least the above-recited features of claim 13. Nowhere in *Ueki* is there any teaching, disclosure, or suggestion of at least the above-recited features of claim 13. Thus, claim 13 as amended is not anticipated by *Ueki*, and the rejection should be withdrawn for at least this reason alone.

e. Claims 15 and 17

Claim 15 is canceled without prejudice, waiver, or disclaimer, and therefore, the rejection to this claim is rendered moot. Applicants take this action merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicants reserve the right to pursue the subject matter of this canceled claim in a continuing application, if Applicants so choose, and do not intend to dedicate any of the canceled subject matter to the public.

Because independent claim 13 is allowable over the cited art of record, dependent claim 17 (which depends from independent claim 13) is allowable as a matter of law for at least the reason that the dependent claim 17 contains all features/elements of independent claim 13. Accordingly, the rejection to this claim should be withdrawn.

7. Claim 19

Claim 19 is rejected under 35 U.S.C. § 102(b) as allegedly anticipated by *Ueki*. Applicants respectfully submit that independent claim 19, as amended, is allowable for at least the reason that *Ueki* does not disclose, teach, or suggest at least the feature of “setting recording conditions necessary for employing a pulse train pattern having a smaller number of pulses whose level is set to a level corresponding to a recording power as a linear recording velocity becomes higher, setting the number of pulses to one (*1*) in the case where data are to be recorded at the linear recording velocity equal to or higher than a first linear recording velocity, and setting the number of pulses to one (*1*) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the length of the recording mark to be formed becomes longer in the case where data are to be recorded at the linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity, thereby modulating the power of a laser beam” as recited in amended claim 19.

As noted above, *Ueki* does not disclose a pulse train pattern with the number of pulses set to one (*1*) in the case where data are to be recorded at the linear recording velocity equal to or higher than a first linear recording velocity, and *Ueki* does not disclose a pulse train

pattern with the number of pulses set to one (*I*) at least when the shortest recording mark is to be formed and the number of pulses is set larger as the length of the recording mark to be formed becomes longer in the case where data are to be recorded at the linear recording velocity lower than the first linear recording velocity and higher than a second linear recording velocity. Thus, claim 19 is not anticipated by *Ueki*, and the rejection should be withdrawn.

4. Rejections Under 35 U.S.C. § 103(a)

At page 5, claims 6 and 18 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Ueki* in view of *Hideya* (JP 10-106008). At page 6, claims 7 and 8 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Ueki* in view of *Sunagawa* (U.S. Patent 6,442,119). At page 7, claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Ueki* in view of *Nobukuni et al.* (U.S. Patent 6,411,579), hereinafter *Nobukuni*. At page 8, claims 11 and 20-22 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over *Ueki* in view of *Nobukuni* and further in view of *Takashi et al.* (JP 2001-101709), hereinafter *Takashi*.

Because independent claim 1 is allowable over the cited art of record, dependent claims 6-11 (which depend from independent claim 1) are allowable as a matter of law for at least the reason that dependent claims 6-11 contain all features/elements of independent claim 1. Similarly, because independent claims 13 and 19 are allowable over the cited art of record, dependent claim 18 (which depends from independent claim 13) and dependent claims 20-22 (which depend from independent claim 19) are allowable as a matter of law for at least the reason that these dependent claims contain all features/elements of their respective independent base claim. Accordingly, the rejection to these claims should be withdrawn.

Furthermore, claims 11 and 20 recite the feature of “a first recording layer and a second recording layer formed between the substrate and the light transmission layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereonto, thereby *mixing an element contained in the first recording layer* as a primary component *and an element contained in the second recording layer* as a primary component.” With respect to *Takashi*, the “first recording layer 111” does not mix with the “second recording

layer 112” (Solution). Accordingly, the rejection to these claims should be withdrawn for at least this reason alone.

Claim 21 recites the feature of “second recording layer is formed so as to be in contact with the first recording layer.” With respect to *Takashi*, the “first recording layer 111” is not in contact with the “second recording layer 112” (Solution). Accordingly, the rejection to this claim should be withdrawn for at least this reason alone.

Claim 22 recites the feature of “light transmission layer is formed so as to have a thickness of 10 nm to 300 nm.” With respect to *Takashi*, the Office Action asserts that paragraph [0021] discloses that the “light transmission layer is formed so as to have a thickness of 10 nm to 300 nm.” However, *Takashi* at paragraph [0021] is describing characteristics of the “1st half reflecting layer 111A.” The reflecting layer 111A is not the recited light transmission layer of claim 22. Accordingly, the rejection to this claim should be withdrawn for at least this reason alone.

5. Claims 14 and 16

Claims 14 and 16 have only been objected to at page 3 of the Office Action. Claims 14 and 16 have not been rejected under either 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) based upon cited art. In the Office Action of October 10, 2006, claims 14 and 16 were indicated as being allowable if rewritten into independent form and including all of the limitation of any intervening claims and their independent base claim. However, the present Office Action apparently has withdrawn the indication of allowability of claims 14 and 16 without explanation for these two claims.

Claim 14 is canceled without prejudice, waiver, or disclaimer, and therefore, any unstated rejection to this claims is rendered moot. Applicants take this action merely to reduce the number of disputed issues and to facilitate early allowance and issuance of other claims in the present application. Applicants reserve the right to pursue the subject matter of this canceled claim in a continuing application, if Applicants so choose, and do not intend to dedicate any of the canceled subject matter to the public.

Because independent claim 13 is allowable over the cited art of record, dependent claim 16 (which depends from independent claim 13) is allowable as a matter of law for at least the reason that the dependent claim 16 contains all features/elements of independent claim 13. Accordingly, any unstated rejection to this claim should be withdrawn.

Applicants respectfully request clarification regarding the allowability of claim 16 in a next Office Action. Since claim 16 has not been expressly rejected, in the event claim 16 is rejected under either 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) based upon newly cited art, the next Office Action *should be non-final* so that the Applicants have at least one opportunity to respond to the new rejection of claim 16.

6. Conclusion

In light of the above amendments and remarks, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that all pending claims 1 and 4-13, 16-22 are allowable. Applicants, therefore, respectfully request that the Examiner reconsider this application and timely allow all pending claims. The Examiner is encouraged to contact Mr. Armentrout by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner notes any informalities in the claims, he is further encouraged to contact Mr. Armentrout by telephone to expediently correct such informalities.

Respectfully submitted,

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